C L A I M S

1. Method for producing hydrogen, electricity and at least one hydroprocessed product from a hydrocarbonaceous feedstock comprising at least a fraction which has a boiling point range which is the same or higher than the boiling point range of the hydroprocessed product to be produced, which method comprises subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a supported catalyst, which hydrogen has been produced at least partly from a fraction of the hydrotreated feedstock having a boiling point range different from the boiling point range of the fraction of the hydrocarbonaceous feedstock from which the hydroprocessed product will be produced, or from at least part of said hydroprocessed product, separating the hydroprocessed product from hydrotreated feedstock when hydroprocessed product is to be recovered and subjecting part or all of the remaining hydrotreated feedstock and the hydroprocessed product if it is not to be recovered to a treatment to produce hydrogen and subjecting part or all of the hydrogen not used for the treatment with hydrogen to a treatment to produce electricity, or subjecting part of the hydrotreated feedstock and the hydroprocessed product if it is not to be recovered to a treatment to produce electricity and at least part of the remainder to a treatment to produce hydrogen.

2. Method according to claim 1, in which use is made of feedstocks ranging from those having an initial boiling point of about ambient to those having a final boiling point of about 650 °C.

3. Method according to claim 2, in which use is made of feedstocks having a boiling point range such that their 90% boiling point lies in the range between 400 °C and 600 °C.

4. Method according to one or more of claims 1-3, in which use is made of feedstocks having a sulphur content of not more than 5 %wt, preferably below 3 %wt.

5. Method according to one or more of claims 1-4, in which a hydrocarbonaceous feedstock is used containing between 5 and 40% wt of material having a boiling point range which is the same as or higher than the boiling point range of the hydroprocessed product to be produced.

6. Method according to claim 5, in which the feedstock contains between 5 and 40 %wt of material having a boiling point above the final boiling point of the hydroprocessed product.

7. Method according to one or more of claims 1-6, in which kerosene and/or gas oil are recovered as hydroprocessed product(s) from the hydrotreated feedstock.

8. Method according to one or more of claims 1-7, in which part or all of the non-recovered material from the treatment with hydrogen is subjected to a catalytic oxidation process which produces hydrogen and carbon (di)oxide.

9. Method according to claim 8, in which the catalytic oxidation process comprises a catalytic partial oxidation process and a watergas-shift process.

10. Method according to claim 8 or 9, in which hydrogen not used in the hydrotreatment step is used at least partially to produce electricity by feeding it to a fuel cell which is operated to deliver electricity and water (steam).

11. Method according to claim 10, in which the electricity in excess of that needed for the utilities of the process is produced from excess hydrogen.

12. Method according to claim 10, in which at least part of the steam needed in the hydrogen manufacturing unit is provided by the fuel cell.

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13. Method according to one or more of claims 1-12, in which kerosene and/or gas oil, hydrogen, carbon dioxide and electricity are produced from no feedstocks other than the hydrocarbonaceous feedstock and water used in the watergas-shift step.

14. Method according to one or more of claims 1-13, in which hydrogen sulphide generated by the treatment with hydrogen is converted into elemental sulphur by conventional means.

15. Method according to one or more of claims 1-14, in which use is made of a catalyst system capable of converting at least 50 %wt per pass, preferably at least 65 %wt of the material having a boiling point range which is the same or above the boiling point range of the hydroprocessed product.

16. Method according to claim 15, in which use is made of a catalyst containing zeolite beta as active component in the treatment with hydrogen.

17. Method according to claim 16, in which the zeolite beta-based catalyst is capable of converting at least 90 %wt per pass of the fraction to be treated to obtain the hydroprocessed product.

18. Method according to one or more of claims 15-17, in which the treatment with hydrogen is carried out at a temperature between 100 °C and 550 °C, preferably at a temperature between 250 °C and 450 °C.

19. Method according to one or more of claims 15-18, in which the treatment with hydrogen is carried out at a

pressure of up to 400 atmospheres, preferably at a pressure between 10 and 200 atmospheres.

20. Method according to one or more of claims 10-19, in which the fuel cell step is operated in such a way that it delivers excess electricity.

21. Method according to one or more of claims 9-20, in which the catalytic partial oxidation step and the fuel cell step are operated in such a way that they generate the internal needs on hydrogen and electricity for the process.

22. Method according to one or more of claims 9-21, in which the hydrogen generated by the catalytic partial oxidation step has been produced at least partly from hydrocarbons containing at most 4 carbon atoms present in the hydrocarbonaceous feedstock or as produced during the hydrotreatment step.

23. Method according to claim 22, in which the feedstock for the catalytic partial oxidation step consists of hydrocarbons having 4 or less carbon atoms.

24. Method according to one or more of claims 1-23, in which hydrogen is separated off from the hydrotreated feedstock and from the hydroprocessed product if the latter is not to be recovered prior to the hydrogen manufacturing step.